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DATE: Monday, January 26, 2004

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<input type="checkbox"/>	L25	(rpc or (remot\$ adj procedur\$ adj call\$)) same (self adj (describ\$ or contain\$))	7
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<input type="checkbox"/>	L20	5764915[pn]	1
<input type="checkbox"/>	L19	l13 and l18	4
<input type="checkbox"/>	L18	719/311-332[ccls]	2286
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<input type="checkbox"/>	L15	(object\$ near4 (self adj (describ\$ or contain\$))) same ((defer\$ or delay\$ or laten\$) near4 (rebuild\$ or reconstruct\$ or build\$ or construct\$))	2
<input type="checkbox"/>	L14	L13 and l4	2
<input type="checkbox"/>	L13	(object\$ near4 (self adj (describ\$ or contain\$))) near12 (rebuild\$ or reconstruct\$ or build\$ or construct\$)	190
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<input type="checkbox"/>	L11	(rpc or (remot\$ adj procedur\$ adj call\$)) and ((delay\$ or defer\$ or laten\$) near4 (rebuild\$ or reconstruct\$ or build\$ or construct\$))	1
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<input type="checkbox"/>	L8	719/330[ccls]	85
<input type="checkbox"/>	L7	(rpc or (remot\$ adj procedur\$ adj call\$)) same ((delay\$ or defer\$ or laten\$) near4 (rebuild\$ or reconstruct\$ or build\$ or construct\$))	2
<i>DB=USPT; PLUR=YES; OP=ADJ</i>			



US006212578B1

(12) **United States Patent**
Racicot et al.

(10) **Patent No.:** US 6,212,578 B1
(45) **Date of Patent:** Apr. 3, 2001

(54) **METHOD AND APPARATUS FOR MANAGING DEPENDENCIES IN A DISTRIBUTED COMPUTING ENVIRONMENT FOR ENSURING THE SAFETY OF REMOTE PROCEDURE CALLS**

(75) Inventors: Christopher Racicot, Mountain View; Usha Sundaram, Sunnyvale, both of CA (US)

(73) Assignee: Oracle Corporation, Redwood Shores, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 08/711,772

(22) Filed: Sep. 9, 1996

(51) Int. Cl.⁷ G06F 1/12

(52) U.S. Cl. 709/330

(58) Field of Search 395/684; 709/300-305; 713/100

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(74) *Attorney, Agent, or Firm—Hickman Palermo Truong & Becker, LLP; Edward A. Becker*

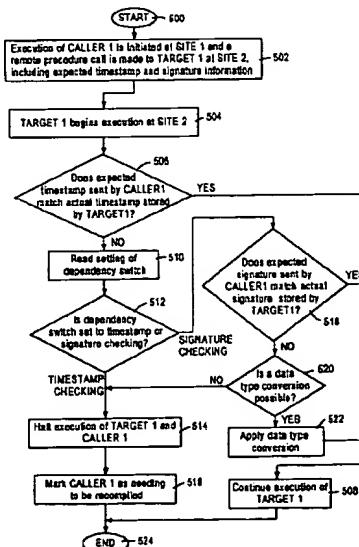
(57)

ABSTRACT

A method and apparatus for managing dependencies in a distributed environment to ensure the safety of remote procedure calls is disclosed. Each remote procedure call between a calling procedure and a target procedure includes an expected time stamp and expected signature associated with the target procedure. The expected time stamp contains the creation time of the target procedure at the time the calling procedure was last compiled. The expected signature contains data type information of the target procedure formal parameters at the time the calling procedure was last compiled.

The target procedure compares the expected time stamp to an actual time stamp maintained by the target procedure. If the two time stamps do not match, the target procedure compares the expected signature and an actual signature maintained by the target procedure to determine whether the data types of the formal parameters sent by the calling procedure are compatible with the data types expected by the target procedure. If the data types are compatible, then execution of the target procedure continues.

41 Claims, 6 Drawing Sheets



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L25: Entry 4 of 7

File: USPT

Apr 3, 2001

DOCUMENT-IDENTIFIER: US 6212578 B1

TITLE: Method and apparatus for managing dependencies in a distributed computing environment for ensuring the safety of remote procedure calls

Brief Summary Text (7):

Historically, several approaches have been used to manage dependencies in distributed computing environments to ensure compatibility during remote procedure calls. Four of these include (1) synchronized installation; (2) time stamps; (3) self-describing data; and (4) data type encoding.

Brief Summary Text (13):

Perhaps the most widely used approach for ensuring the safety of remote procedure calls in distributing computing environments is the use of self-describing data. With this approach, additional data is included in each remote procedure call which fully describes each parameter. This data typically includes type, mode, constraints, and any other meta-data required to fully describe the parameter and ensure correctness.

Brief Summary Text (15):

However, the self-describing data approach adversely affects performance in two ways. First, the self-describing data greatly increases the amount of data being passed in each remote procedure call. Secondly, the data type information is typically interleaved with the parameters, requiring that all of the parameters be checked before compatibility can be confirmed. Consequently, a difference in the last parameter will not be detected until all of the other parameters have been checked.



US006651099B1

(12) United States Patent
Dietz et al.(10) Patent No.: US 6,651,099 B1
(45) Date of Patent: Nov. 18, 2003

(54) METHOD AND APPARATUS FOR MONITORING TRAFFIC IN A NETWORK

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 589 days.

(21) Appl. No.: 09/608,237

(22) Filed: Jun. 30, 2000

Related U.S. Application Data *bad*

(60) Provisional application No. 60/141,903, filed on Jun. 30, 1999.
(51) Int. Cl.⁷ G06F 13/00
(52) U.S. Cl. 709/224; 370/389
(58) Field of Search 709/200, 201, 709/220, 223, 224, 231, 232, 236, 238, 239, 240, 246; 370/389, 392, 395.32

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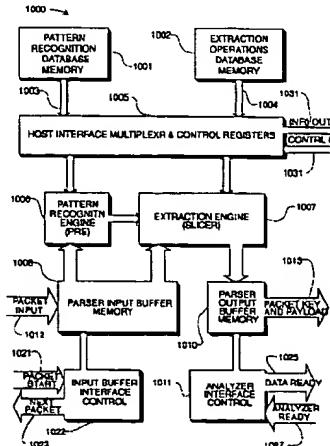
Primary Examiner—Moustafa M. Meky

(74) Attorney, Agent, or Firm—Dov Rosenfeld; Inventek

(57) ABSTRACT

A monitor for and a method of examining packets passing through a connection point on a computer network. Each packet conforms to one or more protocols. The method includes receiving a packet from a packet acquisition device and performing one or more parsing/extraction operations on the packet to create a parser record comprising a function of selected portions of the packet. The parsing/extraction operations depend on one or more of the protocols to which the packet conforms. The method further includes looking up a flow-entry database containing flow-entries for previously encountered conversational flows. The lookup uses the selected packet portions and determining if the packet is of an existing flow. If the packet is of an existing flow, the method classifies the packet as belonging to the found existing flow, and if the packet is of a new flow, the method stores a new flow-entry for the new flow in the flow-entry database, including identifying information for future packets to be identified with the new flow-entry. For the packet of an existing flow, the method updates the flow-entry of the existing flow. Such updating may include storing one or more statistical measures. Any stage of a flow, state is maintained, and the method performs any state processing for an identified state to further the process of identifying the flow. The method thus examines each and every packet passing through the connection point in real time until the application program associated with the conversational flow is determined.

10 Claims, 18 Drawing Sheets



D Com

RPC's that
allow self-contained
objects

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L21: Entry 1 of 2

File: USPT

Nov 18, 2003

DOCUMENT-IDENTIFIER: US 6651099 B1

TITLE: Method and apparatus for monitoring traffic in a network

Brief Summary Text (12):

Other protocols that may lead to disjointed flows, include RPC (Remote Procedure Call); DCOM (Distributed Component Object Model), formerly called Network OLE (Microsoft Corporation, Redmond, Wash.); and CORBA (Common Object Request Broker Architecture). RPC is a programming interface from Sun Microsystems (Palo Alto, Calif.) that allows one program to use the services of another program in a local remote machine. DCOM, Microsoft's counterpart to CORBA, defines the remote procedure call that allows those objects--objects are self-contained software modules--to be run remotely over the network. And CORBA, a standard from the Object Management Group (OMG) for communicating between distributed objects, provides a way to execute programs (objects) written in different programming languages running on different platforms regardless of where they reside in a network.